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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,869	06/14/2005	Yasumasa Watanabe	BHD-4706-3	5889
23117 7590 02/09/2009 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				
EXAMINER				
RABAGO, ROBERTO				
ART UNIT		PAPER NUMBER		
1796				
MAIL DATE		DELIVERY MODE		
02/09/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/538,869

**Applicant(s)**

WATANABE ET AL.

**Examiner**

Roberto Rábago

**Art Unit**

1796

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3,5-7,10,13,16 and 17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-7,10,13,16 and 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/1/2008 has been entered.

### ***Claim Rejections - 35 USC § 112***

2. Claims 1-3, 5-7, 10, 13, 16 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The transitional phrase of independent claims 1 and 2 (and claims 3, 5-7, 10, 13, 16 and 17 as dependent thereon) have been amended to specify "the method consisting of". MPEP 2111.03 states:

The transitional phrase "consisting of" excludes any element, step or ingredient not specified in the claim.

However, applicants have also amended these claims to recite a kneaded mixture "essentially containing the peroxide and the ethylene- $\alpha$ -olefin copolymer." The phrase "essentially containing" does not have an accepted meaning regarding the degree to which additional unspecified components or steps may be included, and therefore

applicants' intended scope regarding use of this phrase cannot be clearly determined. However, it would appear that applicants are attempting to recite a kneaded mixture equivalent to "*consisting essentially of* the peroxide and the ethylene- $\alpha$ -olefin copolymer", which opens this portion of the claim to additional unspecified components which do not affect the basic and novel characteristics of the claimed invention. The placement of the phrase "consisting essentially of," or, in this case its apparent equivalent, is indefinite because it exists within the portion of the claim covered by the transitional phrase "consisting of" which excludes all unspecified elements, steps or ingredients. For the purpose of applying prior art, all aspects of the claimed method are interpreted to be covered by the stated transitional phrase "consisting of" as stated in each of claims 1 and 2, which excludes any element, step or ingredient not specified in the claims.

***Claim Rejections - 35 USC § 102***

3. Claims 2, 3, 5-7 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaglia (EP 1013673) for the reasons set forth in item 2 of the Office action mailed 8/1/2008.

Applicant's arguments filed 12/1/2008 have been fully considered but they are not persuasive. The claims have been narrowed by inclusion of the transitional phrase "the method consisting of" and the kneaded mixture "essentially containing the peroxide and the ethylene- $\alpha$ -olefin copolymer." Applicants argue that such amendments would exclude the cited example method of Tanaglia, which includes a 2-second interval prior

to increasing the rotor speed of the kneading device. However, there is nothing in the claims which limits the mixing protocol of the kneading device, and therefore all conceivable methods of "kneading" are within the scope of the claims, and are not limited by the amended transitional phrase in the manner asserted by applicants. Specifically, it is irrelevant whether the kneading program is continuous constant speed, continuous variable speed, staggered constant speed, staggered variable speed, or any other mixing program within the meaning of "kneading" because the claims are silent on any specifics of this process feature.

***Claim Rejections - 35 USC § 102/103***

4. Claims 1, 10, 13, and 16 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tanaglia (EP 1013673).

The reference discloses in Example 2 the reaction of an ethylene/propylene copolymer of 138,000 molecular weight with t-butyl hydroperoxide at about 146°C. The example states that the temperature rises after the mixing speed is increased, but does not state the final temperature achieved. The kneader is stated to be thermostatically regulated to 135°C, and the initial slow mixing rate of 30 rev/min increases the temperature to 146°C. Since the initial frictional heating of the molten polymer has increased the temperature by 11°C, it would appear that the subsequent six-fold increase in kneader speed to 195 rev/min would increase the temperature of the molten polymer to at least the minimum required value of 167°C (equal to the ten-hour half life temperature of t-butyl hydroperoxide).

In the alternative, if applicants can show that the kneading temperature in the cited example would not be expected to reach 167°C, then selection of a temperature of at least the 10 hour half-life temperature of t-butyl hydroperoxide (i.e., 167°C) is still anticipated because the reference discloses a treatment temperature range of up to 250°C, and the preferred range of 140°C -200°C (see [0015]). Since more than half of the most highly preferred range is within the claimed scope (i.e., 167-200°C includes 55% of the preferred range of 140°C -200°C), the reference is deemed to disclose the claimed range with sufficient specificity.

In a still further alternative, if applicants can show that the reference has not disclosed the claimed range with sufficient specificity for anticipation, then use of the claimed range would be obvious because the reference discloses a treatment temperature range of up to 250°C, and the preferred range of 140°C -200°C (see [0015]).

The reference example has not reported the Mooney viscosity; however, the example copolymer would appear to have a value within the claimed range because applicants have claimed a broad range of values which are conventional for the types of copolymers used in the reference examples. The reference further has not disclosed the hydroxyl group concentration of the resultant polymer, and has not specifically mentioned hydrogen abstraction; however, these features would be inherent because the recommended reference method for making the modified polymers is substantially the same as those of the claims and those described in applicants' examples 1-8. The expected result of kneading t-butyl hydroperoxide or a t-butyl hydroperoxide/dicumyl

peroxide mixture with EPM copolymer at 146-250°C would include at least a non-zero amount of hydrogen abstraction and at least a non-zero amount of hydroxyl group incorporation. The burden of proof is shifted to applicants to show that the recommended methods of the reference would not result in the claimed unreported properties.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberto Rábago whose telephone number is (571) 272-1109. The examiner can normally be reached on Monday - Friday from 8:00 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roberto Rábago/  
Primary Examiner  
Art Unit 1796

RR  
February 5, 2009